CITY OF BALTIMORE
DEPARTMENT OF PUBLIC WORKS
BUREAU OF SOLID WASTE

TEN YEAR SOLID WASTE MANAGEMENT PLAN
JULY 2002

CHAPTER 3
WASTE GENERATION, COLLECTION AND DISPOSAL

3.0 WASTE GENERATION, COLLECTION AND DISPOSAL

State regulations for the development of comprehensive solid waste management plans require that Chapter 3 describes solid waste generation, import or export of wastes for disposal, solid waste collection systems, and waste acceptance facilities within the local subdivision. These subjects are addressed in Sections 3.1, 3.2, 3.3 and 3.4 of this Plan, respectively.

In general the key characteristics of the existing solid waste management system in Baltimore City are its mixed public/private system and its regional scope. Historically, the City has taken responsibility for collecting and disposing of most residential solid waste, especially household wastes. Under current law the City will collect and dispose of up to 80 gallons of mixed refuse twice a week from households and small businesses. Establishments such as apartment complexes and businesses that generate larger amounts of waste must arrange for private collection and disposal of their waste.

Unlike residents of jurisdictions with purely private systems, most residents can rely on solid waste services provided by the City and do not have to pay private hauling fees in addition to their regular property taxes. Solid waste services for larger generators, who may in fact require more specialized, extensive and flexible services than the City could reasonably provide, rely on private companies.

The City has not attempted, as some jurisdictions have, to monopolize the solid waste market. The City has not enacted a "flow control" law-claiming ownership of all solid waste generated within its boundaries. Such flow control laws are sometimes enacted in urban towns and counties to ensure a supply of waste to finance and operate publicly owned waste acceptance facilities. Supreme Court decisions have placed a constitutional cloud over attempts to restrict or control interstate commerce as it relates to the waste industry.

In Baltimore City, private haulers are allowed to dispose of waste generated in the City at any legal disposal facility inside or outside of the City. This is one element of a regional solid waste management system.
Another element allows private haulers to dispose of wastes generated outside the City at waste acceptance facilities inside the City such as the Baltimore Refuse Energy Systems Company (BRESCO) and the Quarantine Road Sanitary Landfill (QRSL). The constraints for importing solid waste into the City (as for exporting wastes out of the City) are the capacities of acceptance facilities and market considerations, including tipping fees and hauling costs. Since BRESCO is privately owned and operated, as are most of the other waste acceptance facilities in the City, they are free to compete in the marketplace to provide waste disposal services in response to demand from their customers.

Thus, the private component of the solid waste management system operates regionally and quite independently of City government in many respects. Private companies perform the same basic waste collection and management functions as the government without conflict.

The City initiated a pilot project that was scheduled to commence in late 1999, in which a private contractor would collect residential mixed refuse and recycling from approximately 10,000 households. The goals for this project included the assessment of the market for privatization of solid waste collection and the evaluation of the performance of the contractor in lieu of government forces. However, the City only received one bid for this project and it was prohibitively expensive in comparison to the City's costs for performing these services. Therefore, the contract was not awarded and the future of private contracting of solid waste services for the City is uncertain.

The fact that so much of the solid waste management system in the City is independently and privately operated has implications for solid waste planning. The City's ability to quantify or precisely describe this solid waste and to determine how all of the solid waste generated within its boundaries is managed could impact the preciseness of the data in this chapter.

In an effort to comply with State regulations on comprehensive solid waste planning, this Plan has attempted to include regional considerations for privately collected waste generated within its boundaries and solid waste from outside its boundaries that reaches solid waste acceptance facilities within the City.

3.1 WASTE GENERATION

State regulations require that Chapter 3 contains a table that shows existing and projected annual generation of specified categories of waste within the subdivision. Technical requirements state that projections shall be given for the succeeding ten-year period at intervals of not more than 5 years. Further, the basis for the data presented in the table must be discussed.

In compliance with these requirements, estimates of existing and future generation of fourteen categories of solid waste in Baltimore City for 2001, 2006 and 2011 are presented in Table 3-1.

The State regulations do not define the specified categories of waste or explain the classification system; however, the specified categories appear to fall into two overall groups. One group includes kinds of waste that can be better distinguished by the source of the waste rather than by the nature of the waste itself (residential waste, commercial waste and institutional waste). Residential waste includes all waste generated by residents, commercial waste is waste generated at businesses, and institutional waste is generated at schools, government buildings and hospitals (with the exception of medical waste). For the purpose of this Plan, institutional waste is included with commercial waste. The second group includes kinds of waste that can be better distinguished by the nature of the

waste rather than by its source. For example, the category "bulky or special wastes (automobiles, large appliances, etc.)" refers to a kind of waste that can be generated at residences, businesses or institutions.

Most of the solid waste generated at residences, businesses and institutions is what the Bureau of Solid Waste calls "mixed refuse", as opposed to bulky (white goods) or special waste. Mixed refuse does not require special handling in collection or disposal. It can be deposited in trashcans, collected in trash collection vehicles (load packers), and processed by incineration. It consists largely of paper, cardboard, plastic containers and packaging, glass containers, metal containers, food waste/garbage, and yard waste (grass clippings, leaves, etc.). Much of the mixed refuse stream can be and is recycled.

TABLE 3-1
ESTIMATED WASTE GENERATION
(Tons per Year)

TYPE OF WASTE (REFERENCE)	**2001**	**2006**	**2011**
Residential (3.1.1)	305,800	294,700	295,400
Commercial* (3.1.2)	224,800	250,660	253,240
Rubble (3.1.3)	4,950	5,000	5,000
Controlled Hazardous Substances** (3.1.4)	900,000	900,000	900,000
Dead Animals (3.1.5)	250	250	250
Bulk - White Goods, Scrapped Autos (3.1.6)	8,500	9,000	9,000
Tires (3.1.7)	527	600	625
WWTP Sludges and Septage (3.1.8)	58,000	59,000	59,000
Leaves (3.1.9)	11,000	15,000	17,000
Christmas Trees (3.1.10)	55	55	55
Marine Debris (3.1.11)	335	350	370
Parks (3.1.12)	1,563	1,500	1,500
Street Sweeper (3.1.13)	16,134	16,000	16,000
Animal Manure (3.1.14)	713	560	560

Notes:

*Includes institutional and industrial waste

**Projections based on 1997 data

3.1.1 Residential Waste

The estimates in Table 3-1 were derived from data on existing amounts of waste collected by the City in 2001 in addition to an estimate of the residential waste collected by private haulers. Per capita generation rates were calculated for City-collected wastes and then used to estimate amounts collected by private haulers. The same generation rates were used to project amounts for 2006 and 2011, based on population, school enrollment and employment.

Projections are based on the actual amount of mixed refuse collected annually by the City because this amount is the most reliable indicator of waste generation available to the City. Daily records are kept of the amount of materials delivered by City collection crews to the waste acceptance facilities. These records show that 305,556 tons of mixed refuse was collected by City crews in 2001. Please note that this section of the plan does not pertain to residential recycling, as it will be addressed in Section 3.3.3.

3.1.2 Commercial Waste

Since City crews collect only part of the mixed refuse generated in the City, 306,000 tons do not represent the total generated. The balance is commercial waste, collected by private haulers. In 2001, private haulers delivered approximately 469,200 tons of mixed refuse generated in Baltimore City and Baltimore County to waste acceptance facilities (BRESCO, the Eastern Sanitary Landfill & Solid Waste Management Facility and QRSL). This amount can serve as a reasonable estimate of the commercial waste generated in the two subdivisions (See Table 3-2).

TABLE 3-2
MIXED REFUSE COLLECTED BY PRIVATE HAULERS IN 2001
IN THE BALTIMORE REGION (TONS)

Delivered to BRESCO	299,200
Delivered to Eastern Sanitary Landfill	16,500
Delivered to QRSL	153,500
Total	**469,200**

It is not known what percentage of this 469,200 tons of privately collected mixed refuse is generated in the City as opposed to the county. In order to satisfy State requirements, it has been necessary to adopt some assumption about this proportion. Since much of the privately collected refuse is generated at businesses, the assumption made in this Plan is that the percentage of waste generated in the City as opposed to the county is similar to the percentage of jobs located in the City as opposed to the county. According to Maryland State Department of Planning figures,

approximately 51 percent of the jobs between the City and County are in the City. Using this assumption, it can be estimated that 239,292 of the 469,200 tons are generated in the City.

The estimated total amounts of City-collected and privately collected mixed refuse generated in the City were generated using per capita generation rates. It should be noted that these per capita generation rates should be viewed as a means to allocate total amounts among residential, commercial and institutional generators, as required by the State. The per capita rates were also used to estimate how waste generation may vary in the future with changes in employment, population and school enrollment. The method by which data pertaining to the amounts of mixed refuse collected by City crews and private haulers was used to calculate per capita generation rates and project future amounts is presented in Appendix A. The statistics on population, school enrollment and employment used in the calculations are included.

Institutional Waste

The State regulations include hospitals, schools and government buildings as institutions generating "institutional waste." Therefore, general waste or mixed refuse generated at hospitals, schools or government buildings in the City are included in the estimates for institutional waste. As explained in Appendix A, school students and government employees data obtained from the Maryland Office of Planning was utilized to prepare the data. Hospital data was obtained from the Northeast Maryland Waste Disposal Authority's 1988 medical waste disposal project, which found that hospitals in Baltimore City generate approximately 16,000 tons of general waste per year. For the purpose of this plan institutional waste, as well as industrial waste, will be included with commercial waste.

Industrial (Non-Hazardous) Wastes

Industrial (non-hazardous) wastes are solids, liquids and sludges generated by manufacturing or industrial processes that are not hazardous wastes regulated under Subtitle C of the Federal Resource Conservation and Recovery Act (RCRA). In general, the City does not collect information on the character and quantity of this waste from the companies generating. Several industries dispose of industrial non-hazardous waste at QRSL. The amounts and types of these wastes are included in the projections.

3.1.3 Land Clearing and Demolition Debris (Rubble)

Land clearing and demolition debris is refuse generated from demolition of buildings, streets and other improvements and clearing of sites to prepare them for new construction, rehabilitation, street improvements or utility installation. In the City, which has little undeveloped land, this refuse is primarily inorganic, consisting of concrete, brick, bituminous paving material, lumber, drywall, plaster, roofing material and insulation.

The estimates of rubble generation in Table 3-1 are based on the actual amount of refuse identified as rubble that was accepted in 2001 at the City's QRSL. Most of this rubble is generated by City operations. Private demolition and construction contractors find it more economical to use private facilities to dispose of any rubble, given the current tipping fee of $67.50 per ton at QRSL (includes $7.50 per ton surcharge for most rubble). No information is available to the City on the total amount of rubble handled by the private sector and removed for disposal outside the City boundary.

The amount of City rubble has increased significantly since 1998. However, the 2001 data for City rubble is assumed to remain constant or increase slightly in the next ten years. The demolition of public housing and vacant properties for purposes of urban renewal has essentially been completed and there is no foreseeable significant increase in the amount of demolition in the period covered by this plan. Most rubble is handled either by private recyclers or private rubble landfill facilities.

It should be noted that materials containing friable asbestos are not permitted to be disposed of at the landfill. Any debris containing friable asbestos that is generated in the City must be exported for disposal, since there are no waste acceptance facilities in the City at this time that accept this material.

3.1.4 Controlled Hazardous Substances

Controlled hazardous substances are those wastes whose disposal is regulated under Subtitle C of the Federal Resource Conservation and Recovery Act (RCRA, see Section 1.3.1.1). Local governments in Maryland have not been granted authority to enforce Federal or State regulations on the disposal of hazardous wastes. The Maryland Department of the Environment (MDE), however, compiles information on the producers and the amounts of hazardous wastes being handled within Baltimore City limits. Current information is unavailable at this time. However, the most recent records indicate that approximately 11,700 tons of solid hazardous waste and 208,500,000 gallons of liquid hazardous waste, equating to a total of 900,000 tons of hazardous waste were handled by 45 identified large businesses and industries in 1997. This tonnage is expected to remain the same for the next ten years.

The largest producers of these materials were:

Vista Chemical Company
GM Truck and Bus Group
A1 Plating Company
Clean Harbors
Maryland Environmental Service

These five generators handled 95 percent of the total amount of hazardous waste in the City.

Each producer is responsible for proper handling and disposal of its hazardous waste. There are no hazardous waste disposal facilities in the State of Maryland. These firms are required to use out-of-state processing plants or emplacement facilities.

3.1.5 Dead Animals

Since Baltimore City is fully urbanized, most animal carcasses requiring disposal in the City are those of stray or unwanted cats and dogs. The City is responsible for removing animal carcasses from public property and for removing live animals that are defined as strays under the law. Approximately 90 percent of stray dogs and other animals are subjected to euthanasia because homes cannot be found for them. These animal carcasses are currently collected for disposal by private forces under a contract with the City. The City's animal shelter estimates 250 tons of animal carcasses are generated annually.

3.1.6 Bulky or Special Wastes

Bulky or special wastes as cited in the State regulations are automobiles and large appliances. It is estimated that 7,236 tons of scrapped automobiles were generated in the City in 2001. The tonnage of automobiles is based on the proportion of motor vehicles registered to owners in the City as opposed to the entire state in 1999 (6.7 percent or 271,762 of 4,061,561 registered in the entire state.). Applying the same percentage to the number of automobiles scrapped in the State in 1999 (80,000) and assuming no significant change in the number of scrapped autos, it is estimated that 5,360 automobiles in the City were scrapped in 2001. At 1.35 tons per automobile, this number of vehicles weighs approximately 7,236 tons.

The tonnage of appliances is based on the number that is accepted by the City Bureau of Solid Waste or deposited at one of the City's drop-off centers. In 2001, 1,442 tons were processed in the City. It is assumed that this will remain relatively constant for the next ten years based on the assumption that the tonnage of scrapped automobiles does not change significantly from year to year. The 2001 tonnage of approximately 7,200 tons of scrapped automobiles is combined with the 2001 tonnage of appliances to equal a total bulk tonnage of approximately 8,500.

3.1.7 Vehicle Tires

The number of 527 tons per year of tires generated in the City is based on the tonnage of tires collected in 2001 by City forces. This number is largely representative of tires that have been recovered by City forces at drop off locations and collected by City forces at illegal dumping locations. It is assumed that this tonnage will vary from year to year, but not change significantly in the next ten years.

3.1.8 Treatment Plant Sludges and Septage

Treatment plant sludges are the solids remaining after wastewater and raw drinking water treatment. The estimates presented in Table 3-1 of sludge generation in the City reflect the proportion of the sludge generated at the City's three water filtration and two wastewater treatment plants.

The Back River Wastewater Treatment Plant currently generates about 182,000 wet tons of sludge annually. Through competitively bid contracts, private firms utilize 100 percent of this sludge. 21 percent of this sludge goes on agricultural lands as a growth stimulant. The Baltimore City Compost Facility in Hawkins Point, a private company, utilized 27 percent of Back River's sludge production to compost for horticultural purposes. The Baltimore Pelletech Facility treats 52 percent of the sludge and makes pellets for use as a fertilizer.

The Patapsco Wastewater Treatment Plant generates approximately 80,000 wet tons of sludge annually calculated at an equivalent 25 percent total solid content. All sludge generated at Patapsco is heat dried at Stericycle, Inc. located on site prior to distribution and marketing. The heat-dried product is rich in nutrients and is used as a partial fertilizer thus recycling the product in an environmentally sound manner.

The City's three water filtration plants (Montebello Plants 1 and 2 and Ashburton) currently generate about 2,400 tons of sedimentation sludge per year. Since Baltimore City residents and businesses utilize 53 percent of the total water filtration plant capacity, about 1,000 tons of sludge can be said to be generated within the City.

The City's Bureau of Water and Wastewater expects sludge generated at the Patapsco Plant to increase by approximately 35 percent over the next ten years to about 109,000 wet tons at an equivalent total solids content of 25 percent. This increase will result mostly from growth outside the City and is not expected to be attributable to City residents. Sludge production at the Back River Wastewater Treatment Plant and the three water filtration plants is not expected to increase appreciably. The Back River Wastewater Treatment Plant is at capacity and there are no planned additional processes that would generate considerably more sludge. The Montebello Plants 1 and 2 and Ashburton Water Filtration Plant are not slated for expansion or major process changes, and sludge production should be maintained at current levels.

The City's Waste Hauler/Scavenger Program became effective on January 1, 1987. Under the program, any company wishing to dispose of septage into the City wastewater system must obtain a Waste Hauler Permit, Vehicle Permit Tag for each vehicle and pay annual permit and vehicle tag fees.

The program is regional in scope, recognizing programs, which were developed cooperatively with the City program in Baltimore, Howard and Anne Arundel Counties. The program dictates the types of wastes to be accepted, allows

for City sampling of the septage, and reserves the City's right to refuse acceptance of any load. Any violation of the program conditions can result in fines, revocation of permits and/or prosecution of the permit holder.

Septage received at the Back River and Patapsco Plants currently accounts for less than 1 percent of the daily flow at either plant. The septage discharge becomes part of the plant flows and is subject to the same treatment processes. The solids also become part of the overall sludge production and are subject to the same solids processing and disposal.

3.1.9 Leaves

The City collects leaves by vacuum units, mechanical sweepers, and loadpackers each fall. The leaves are taken to mulch sites operated by the Department of Recreation and Parks. The principal mulch site is located at Camp Small. Camp Small is a 13 acre site located in the 2000 block of West Cold Spring Lane. The Bureau of Solid Waste delivers approximately 10,000 tons of leaves there each year. The City also delivers leaves to a smaller site at Leakin Park. At the mulch sites, leaf mulch and wood chips produced are used by the Department in its horticultural program. The mulch is also utilized in community gardens throughout the City. In 2001, the City according to Bureau of Solid Waste records generated 11,000 tons of leaves.

3.1.10 Christmas Trees

During the month of January, two days are designated as drop-off days for Christmas tress. They are also collected on the second collection day of each week. The trees are taken to Camp Small Composting Area where they are mulched. According to recycling records, seventy-five tons of Christmas trees were generated in the city in 2001. The tonnage of Christmas trees is expected to remain constant over the next ten years.

3.1.11 Marine Debris

In an effort to keep Baltimore attractive, Marine Operations cleans local waterways such as the Inner Harbor. Nine boats are utilized including four "Skimmer" boats which load and then off load trash and debris. There are two boats called Romarines, which are smaller boats used by the crews to scoop trash and debris from the water. Three bass boats are also used by crews to scoop debris from the water.

3.1.12 Parks

The tonnage of waste collected from parks as reflected in Table 3-1 is generated by the major parks. The five major parks, Druid Hill, Leakin, Patterson, Carroll, and Clifton are collected from three times a week using regular sixteen cubic yard loadpackers. The corner cans located in the smaller neighborhood parks are picked up twice a week along

the mixed refuse routes in which the park is located.

3.1.13 Street Sweepers

Street sweepers consist of mechanical street sweepers and sidewalk sweepers. The sweepers collect litter and trash from the main streets and sidewalks. Mechanical sweeper operations include 74 routes on a weekly basis. Sidewalk sweepers operate on a daily basis usually in the business district areas. In 2001, mechanical street sweepers and sidewalk sweepers gathered 16,134 tons.

3.1.14 Animal Manure

The City's major producer of manure is the Baltimore Zoo. The zoo contacts the city when there is a significant load of manure. The city sends a dump truck to collect the waste, which is delivered to Quarantine Road Sanitary Landfill. In 2001, the Quarantine Road Sanitary Landfill used the 233 tons collected as part of its daily cover.

3.2 IMPORT/EXPORT OF SOLID WASTE

State regulations require that Chapter 3 of comprehensive solid waste management plans include a discussion of the types and quantities of solid waste, if significant, which are entering or leaving the subdivision for processing, recovery or disposal. In compliance with this requirement, the types and quantities of solid waste imported to the City for disposal which are known to be significant are discussed below. These wastes include residential mixed refuse, commercial/institutional mixed refuse, scrapped automobiles, special hospital waste and wastewater treatment plant sludges. Wastes believed to be exported are listed also, although the City has very little information concerning amounts of these wastes.

3.2.1 Imported Mixed Refuse

Mixed refuse collected by Baltimore County is currently imported to the City for processing at BRESCO, and the ash residue remaining after processing is used as an alternative daily cover at QRSL. In 2001, Baltimore County delivered approximately 91,000 tons of residential waste and 228,000 tons of commercial waste to BRESCO. Total mixed refuse for Baltimore County imported into BRESCO was approximately 319,000 tons. Thus, the total waste imported to BRESCO is estimated to be 319,000 tons per year.

All of the ash remaining after processing is deposited at the QRSL. This equates to approximately 216,000 tons of ash resulting from imported waste; representing approximately 20% of all waste disposed of at QRSL in 2001.
Mixed refuse (as well as special hospital waste) is also imported to the Baltimore Regional Medical Waste Facility (see subsection 3.4.3). The most recent data indicated that this incinerator processed approximately 25 tons per day

of imported refuse (about 9,000 tons per year). The ash residue remaining after processing, 35 percent by weight or about 3,150 tons per year, had been disposed of at QRSL but is now exported to an out-of-state landfill.

3.2.2 Imported Scrapped Automobiles

Scrapped automobiles from wrecking yards throughout the metropolitan area are imported to the 11 licensed automobile scrap processors and recyclers located in the City. Although metal from these automobiles is ultimately reused inside or outside the City, processing also generates 0.3 tons per automobile of non-recycling material ("fluff") that requires disposal.

The major metal scrap processor in the City, The David Joseph Company, operates a shredder with the capacity to process 500 cars a day. It is estimated that this company processes at least 35,000 cars per year that originate outside the City, generating at least 11,000 tons of "fluff" per year. Fluff can be accepted at QRSL, however, due to the cost of disposal at QRSL, this material has been disposed of outside of the City.

3.2.3 Imported Scrap Tires

The major tire recycler in the City is Emanuel Tire Company. Emanuel has a capacity to process 6 million scrapped tires annually. Currently it is reported to be handling approximately 3 million tires per year or 52,000 tons per year. Approximately 40,000 tons originate outside of the City. The processed shredded scrap rubber is sold to various customers within and outside the region. Miscellaneous steel resulting from the tire shredding operation is recycled.

3.2.4 Imported Special Medical Waste

As previously discussed in Section 3.1.2, special medical waste as well as mixed refuse from medical facilities is imported to the Baltimore Regional Medical Waste Facility. In addition, special hospital waste is imported for processing at the Stericycle incinerator, although the ash residue generated at this facility is exported for disposal (see Subsection 3.4.4).

3.2.5 Exported Wastes

The vast majority of waste that is collected by City forces is disposed of in the City at either the Quarantine Road Sanitary Landfill (3.4.2) or at BRESCO (3.4.1). Most of the City's waste that is exported is done so by private waste collectors and haulers, limiting the City's knowledge of the amount of waste that is exported from the City. Although it can not be assumed that all waste that is collected by private waste haulers is exported, as many of these haulers utilize BRESCO, QRSL and other City based facilities (see Section 3.4), it is assumed that parts of all the privately collected waste stream is exported. This is based on a limited amount of facilities to service the disposal

needs of the private waste stream. Because no records are available pertaining to these waste constituents, it is not known whether the amounts of these wastes being exported are significant.

It is believed that much of the controlled hazardous substances generated in the City are exported, since there is little disposal capacity for such waste in the City. While the City is aware of treatment facilities in the City (such as Clean Harbors of Baltimore referred to in Subsection 3.4.9), it is not aware of facilities located in the City for ultimate disposal of sludges or residues remaining after treatment.

All of the estimated 250 tons per year of animal carcasses collected by the City were delivered to Valley Proteins, Inc.'s transfer facility then exported to an out-of-state rendering plant. On June 30, 2000, Valley Proteins, Inc. disallowed animal carcasses to be disposed of in its facilities. The Health Department signed a contract with Phoenix Medical Waste Incinerator that allows the city to send cats and dogs to that facility until other contracts can be negotiated. The alternatives are discussed in Chapter 5 of this Plan.

3.3 WASTE COLLECTION

State regulations require that Chapter 3 of comprehensive solid waste management plans include a description of existing solid waste collection systems, including service areas. Such a description is presented below, with more detail on the public than the private collection system (see introduction to this chapter).

All of Baltimore City is served by the public waste collection system. Under Article 23 of the Baltimore City Code, the City is responsible for collecting all "mixed refuse" from dwelling houses, apartment houses, tenement houses, boarding houses, hotels, restaurants, hospitals and other places where such refuse is accumulated, in amounts not exceeding the contents of four 20-gallon containers twice a week (see Section 1.3.1.3).

As a pilot project, the City issued a request for proposals (RFP) in April of 1999 to allow private contractors to provide solid waste collection services for approximately 10,000 households (see introduction to this chapter). While there were no acceptable bids or proposals made by contractors for this project, the possibility exists that some aspect of waste collection currently performed by the City will be privatized in the period covered by this plan. In the event that this occurs, any waste collected would be considered part of the public collection system.

Property owners who accumulate solid waste that is not collected by the City are served by the private waste collection system. The private system consists of numerous haulers who contract individually with property owners to provide collection services (and who also may contract with waste acceptance facilities). Beyond the City's Health Department issuing permits to haulers operating in the City in order to safeguard public health, the City is not involved in the functioning of the private waste collection system. Consequently, our discussion of the private waste collection system will be limited in scope.

3.3.1 Collection System and Service Areas

The City of Baltimore provides a wide variety of sanitation services with the goal of maintaining a clean and safe Baltimore. These services are provided primarily by the Department of Public Works, Bureau of Solid Waste, Collections Division (the organizational structure of this Division is shown in Figure 1-4). The base of the Bureau of Solid Waste's operations is Room 1000 of the Abel Wolman Municipal Building located in downtown Baltimore. This office and the other locations of Bureau of Solid Waste operated facilities are shown in Figure 3-1.

The Bureau has operations seven days a week, excluding holidays. Legal holidays when no collection services are provided are New Year's Day, Martin Luther King's Birthday, Lincoln's Birthday, Presidents' Day, Good Friday,

Memorial Day, the Fourth of July, Labor Day, Columbus Day, General Election Day, Thanksgiving Day and Christmas Day.

While the Bureau of Solid Waste is primarily responsible for trash collection in the City, other City agencies provide waste collection services as well. These agencies include the Department of Housing and Community Development, the Department of Education and the Department of Recreation and Parks. The scope of these agencies' involvement is limited to the facilities owned and operated by the agencies.

The Solid Waste Collections Division, whose responsibilities include all municipal collection and cleaning functions, employs more than 1000 people and approximately 500 pieces of equipment in providing these services. Along with the traditional equipment of rear-loading loadpackers, front end loadpacking vehicles (primarily used for dumpsters), and mechanical street sweepers, this task is also augmented by small front-end loaders ("Bobcats"), large open dump trucks, lift gate trucks, vacuum leaf-loaders, and alley sweepers. Business districts are cleaned by small sweeper/vacuum units and "hokey" carts. Waterways are cleaned by utilizing the marine equipment detailed in 3.1.11.

Mixed Refuse Collection

Residential mixed refuse collection is provided by the Bureau of Solid Waste's Collections Division, Routine Services Section. Regular mixed refuse collection services are provided twice a week by the City to each location served, Mondays through Saturdays except on legal holidays. Each location is served either on Monday and Thursday, Tuesday and Friday, or Wednesday and Saturday (see Figure 3-2).

Bureau of Solid Waste Collections operations is divided into four districts: Northeast, Northwest, Southeast, and Southwest. These operations are based out of their corresponding yard facilities shown in Figure 3-1. The collection districts are in turn subdivided into 21 collection boroughs or zones (see Figure 3-2). Each borough has a supervisor responsible for the residential collection operation in the borough and the overall cleanliness of the right-of-ways.

The City collects all mixed refuse generated at City Parks, single-family residences, and City litter baskets. In its residential operation, the City utilizes 3 person crews on two different sized rear loadpacker vehicles; one holds a compacted load of approximately 16 cubic yards of material and the other holds 20 cubic yards of material. The number of collection locations served ("stops") is approximately 205,000. With twice a week collection service, this works out to be about 68,500 stops per day.

The Collections Division's Special Services Section provides mixed refuse collection services for those multi-family residences (generally condominiums) that the City is obligated to service through the utilization of front-end loaders. This operation is based out of the Franklintown Road facility (see Figure 3-1).

From 9:00 p.m. to 5:00 a.m., there are approximately nine (9) crews assigned to mixed refuse routes in the Mount Vernon area of the City and to service the City's litter baskets along major thoroughfares and business areas. This is ıy per week operation (excluding the Mount Vernon area, which is only serviced on Tuesdays and Fridays) eration is based out of the Routine Services Section's Northwest Sanitation Yard (see Figure 3-1).

EMBED PBrush

FIGURE 3-1
BUREAU OF SOLID WASTE FACILITIES

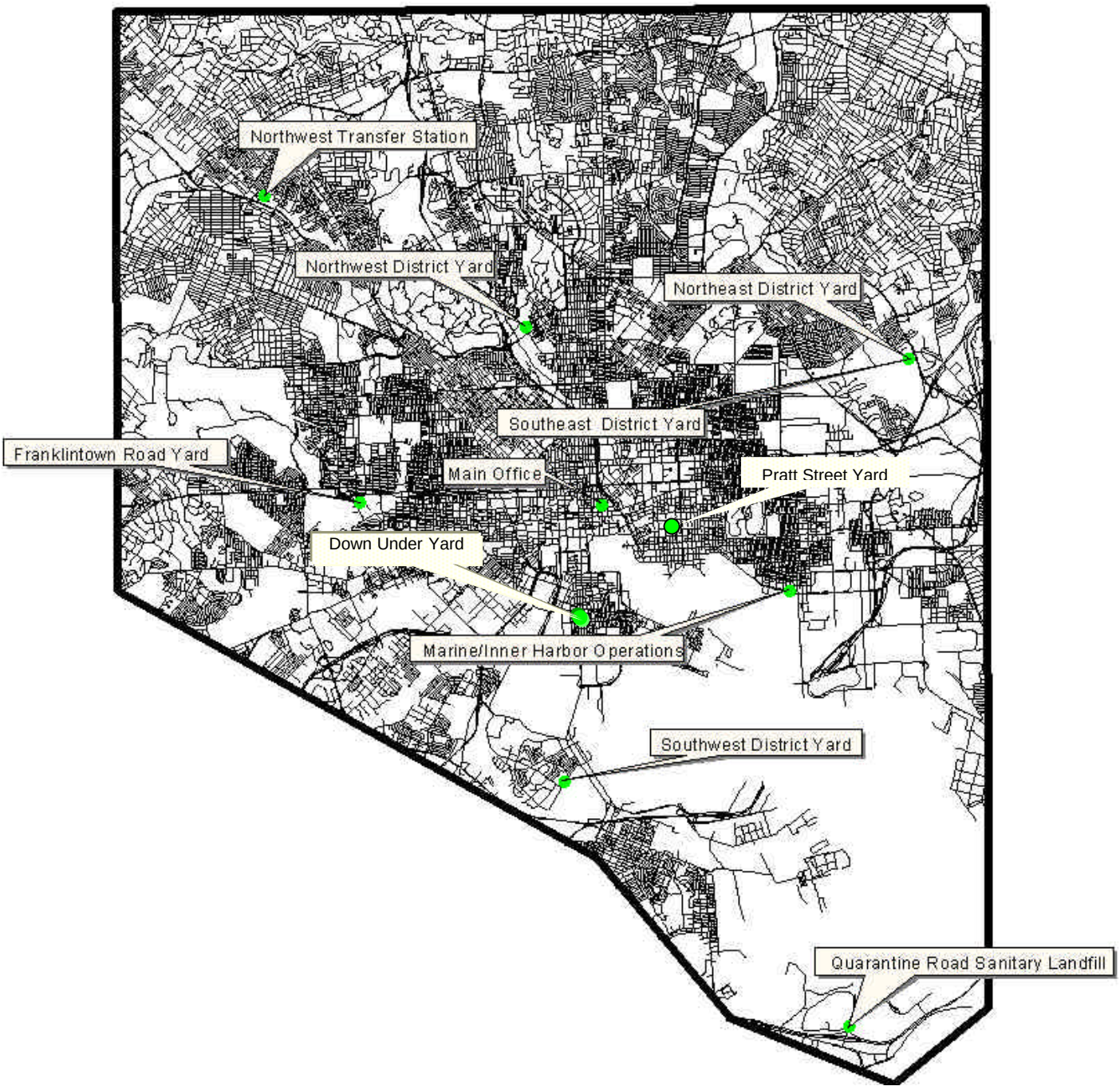
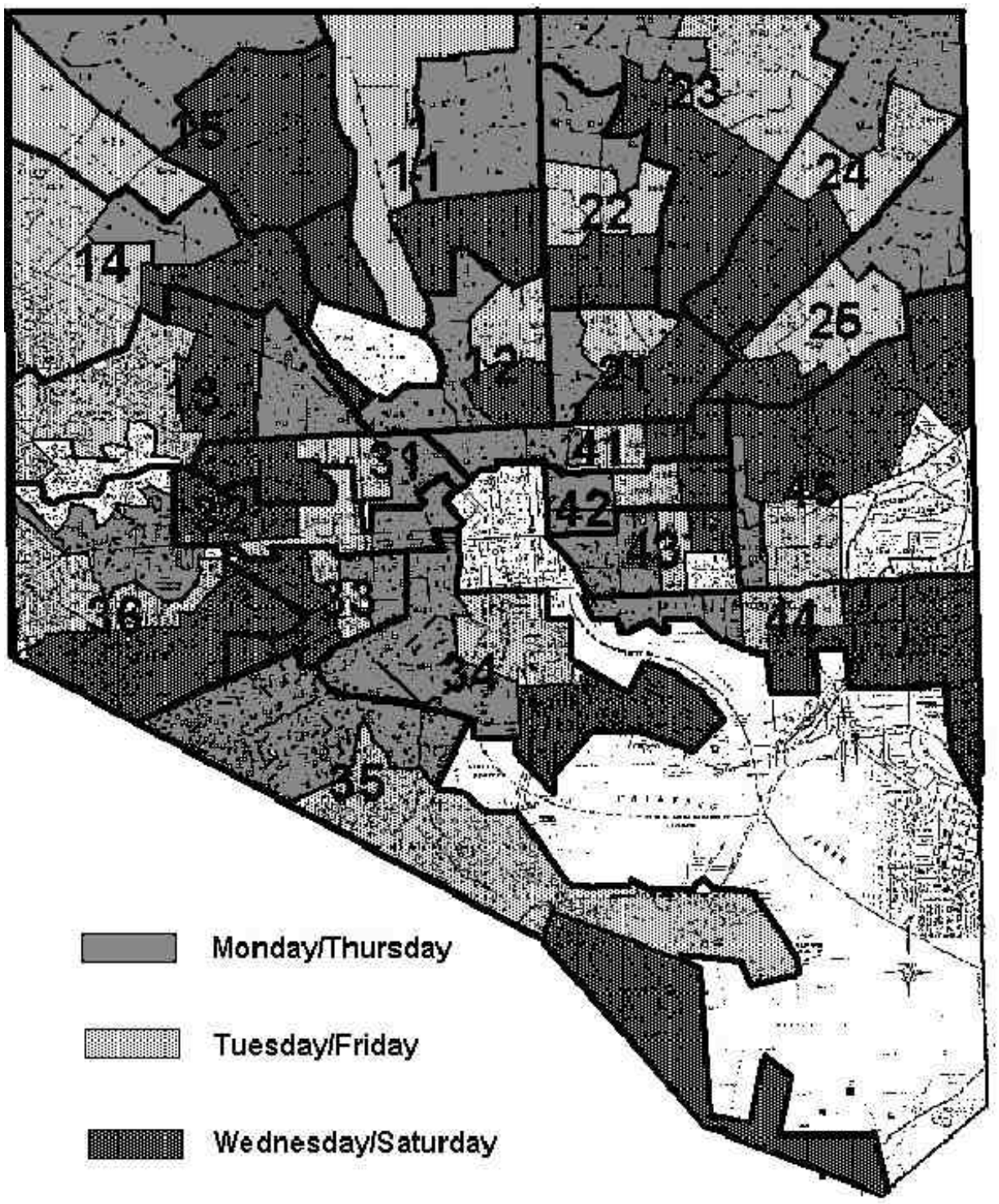


FIGURE 3-2
BUREAU OF SOLID WASTE COLLECTION DAYS AND BOROUGHS



The Routine Services Section also provides regularly scheduled cleanings of business districts, streets and alleys and some City-owned lots and parks. These operations are coordinated by the same borough supervisors responsible for the residential mixed refuse operation.

The amount of residential mixed refuse collected by City crews varies from season to season. Generally, tonnage collected is higher in spring and summer than in the winter, with the greatest amount collected in May and July. In 2001 approximately 230,000 tons of mixed refuse was collected by City residential mixed refuse crews (see Table 3-3).

For purposes of delivering collected residential mixed refuse to acceptance facilities, the City is essentially divided into two parts. Boroughs 11, 12, 14, 15, 22, 23, 24, and parts of 13 and 21 generally comprise the service area for the Northwest Transfer Station. Waste that is brought there is dumped and placed in large trailers for transport to the Baltimore Refuse Energy Systems Company (BRESCO, see Section 3.4.1) for incineration or to the Quarantine Road Sanitary Landfill (QRSL, see Section 3.4.2). All of the other boroughs and parts of boroughs generally comprise the service area for BRESCO.

Infrequently, BRESCO will close for a period of time in order to perform routine maintenance or to tend to emergencies that occur which may disrupt operations. During these periods, waste that would have been brought to BRESCO, public and private, is diverted to QRSL for disposal.

Bulk Trash Collection

For purposes of bulk trash collection, the City is divided into 20 zones (see Figure 3-3) with each zone being serviced one day a month. On this day, residents of the zone who call or e-mail the City requesting this service, may place up to three bulky items out for pickup (construction material is not included in the bulk items eligible for pickup by the City). Once collected, bulk that is not recyclable is transported to the Northwest Transfer Station (see Figure 3-1), BRESCO or directly to the QRSL, similarly to the residential mixed refuse routes.

Other Waste Collection Operations

The Solid Waste Collections Division, Special Services Section's Marine Operations unit, based in the Canton area of the City (see Figure 3-1), cleans the shores and waterways of the Inner Harbor and the Middle Branch and Northwest Branch of the Patapsco River (see Figure 3-4). This operation is responsible for removing over 250 tons of debris from these waterways on an annual basis.

The Special Services Section also performs various functions that are seasonal and require weekend cleaning

attention (Community Clean-ups, Parades and Festivals, Leaf Collection, etc.) These functions are performed using seasonal employees (temporary employees used for specific short-term activities) to collect the debris. This allows for the efficient operation of these services without impacting year-round waste collection services.

Special Services also provides mechanical street sweeping services along major thoroughfares and in neighborhoods on a regularly scheduled basis. This section is also responsible for the collection of eviction chattel and removal of fire debris from City right-of-ways. Additionally, this section provides graffiti removal services as well as the performance of rat eradication.

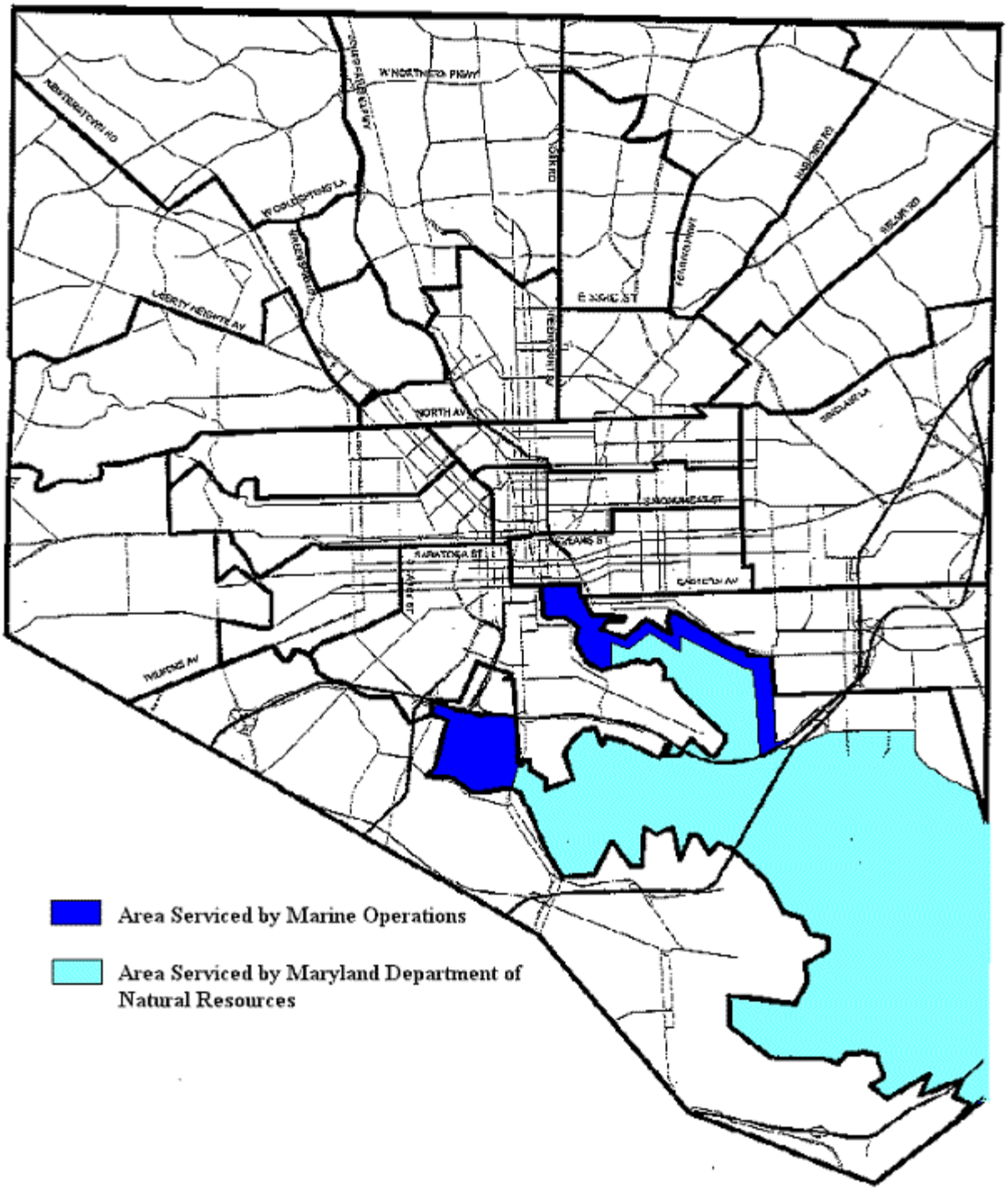
Waste Collected

The amount of waste collected by the Bureau of Solid Waste varies from month to month based on seasonal fluctuations. Waste collected is traditionally highest in the Spring and Summer months based on an increase in both household and community cleaning and increases in outdoor activity. The monthly totals of waste collected by the Bureau in 2001 for several categories of waste are listed in Table 3-5.

FIGURE 3-3
MONTHLY BULK COLLECTION ROUTES


WEDNESDAY
FRIDAY
THURSDAY
THURSDAY
WEDNESDAY
NW
NE
FRIDAY
MONDAY
MONDAY
TUESDAY
TUESDAY
TUESDAY
THURS.
MONDAY
SE
FRIDAY
WED.
THURS.
FRIDAY
WED.
TUESDAY
SW
MONDAY
Monthly Schedule
1st week: SW
2nd week: SE
3rd week: NE
4th week: NW

FIGURE 3-4



MARINE OPERATIONS SERVICE AREA

3.3.1 Private Waste Collection System

Although the City is obligated to collect solid waste in the entire City, stipulations in the City Code limiting the amount and type of solid waste to be set out for collection give opportunities for private waste haulers to provide the remaining waste collection needs of the City. These haulers range from multi-billion dollar international corporations to small operators owning single pick-up trucks. They are all significant in the City's integrated solid waste management system.

The Baltimore City Health Department issues permits to operate in the City based upon the types of wastes the private haulers wish to collect and the sizes of vehicles being used to do the work. Haulers whose vehicles have a gross vehicle weight (GVW) of over 7,500 pounds are referred to as Large Haulers. As of August 1, 2000, there were a total of 535 Large Haulers registered to operate in the City at a cost of $50.00 per year. These haulers with eligible loads are permitted to dump at the QRSL at the tipping fee of $67.50 per ton.

Haulers whose vehicles have a GVW of 7,500 pounds or less and a rated capacity of 1,500 pounds or less are considered Small Haulers. There are approximately 2,500 registered Small Haulers that pay a fee of $20.00 and are allowed to dump at the QRSL at a cost of $5.00 per dump.

The City has no direct knowledge of the types and amounts of wastes collected by these haulers. The City knows what portion of the waste is delivered to QRSL (see Section 3.4.2) by these private haulers. The majority of this waste is assumed to be disposed of in and through private facilities in the City or exported from the City.

In accordance with the City Code, citizens with proof of residency may dispose of their wastes at City owned facilities at no cost. This is limited to wastes that are carried in passenger vehicles and that are not prohibited for disposal at the facilities.

TABLE 3-3
MONTHLY TONNAGES OF DEBRIS REMOVED
BY BUREAU OF SOLID WASTE IN 2001

Waste Categories	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Totals
Residential Mixed Refuse	18,156	16,062	17,852	19,087	21,519	20,438	20,687	20,832	18,334	19,606	19,819	19,360	231,752
Bulk Trash	449	497	527	502	530	552	607	598	590	538	564	587	6,541
White Goods	106	73	110	120	152	118	155	201	151	178	188	133	1,685
Sweepers	1,274	926	1,158	1,205	1,504	1,332	1,359	1,328	1,254	1,732	1,694	1,368	16,134
Tires	21	22	44	24	32	40	26	26	27	35	69	53	419
Mixed Paper	1,047	863	1,029	955	998	944	834	893	902	1,098	1,184	957	11,704
Commingles	269	210	236	205	225	225	219	209	225	208	187	212	2,630
Leaves/Trees	400	0	0	0	0	0	0	0	0	200	4,700	5,200	10,500
Marine Operations	0	13	31	20	16	24	19	21	13	5	5	56	223
Community Clean-ups	259	232	268	110	364	542	334	225	296	245	155	185	3,215
Fire Debris	110	130	87	94	142	187	63	27	25	30	69	99	1,063
Evictions	158	139	143	176	269	248	232	257	202	239	153	134	2,350

3.3.3 Recycling Collection

Collection of Household Recycling

The Bureau of Solid Waste provides residential recycling collection service for the City of Baltimore out of its

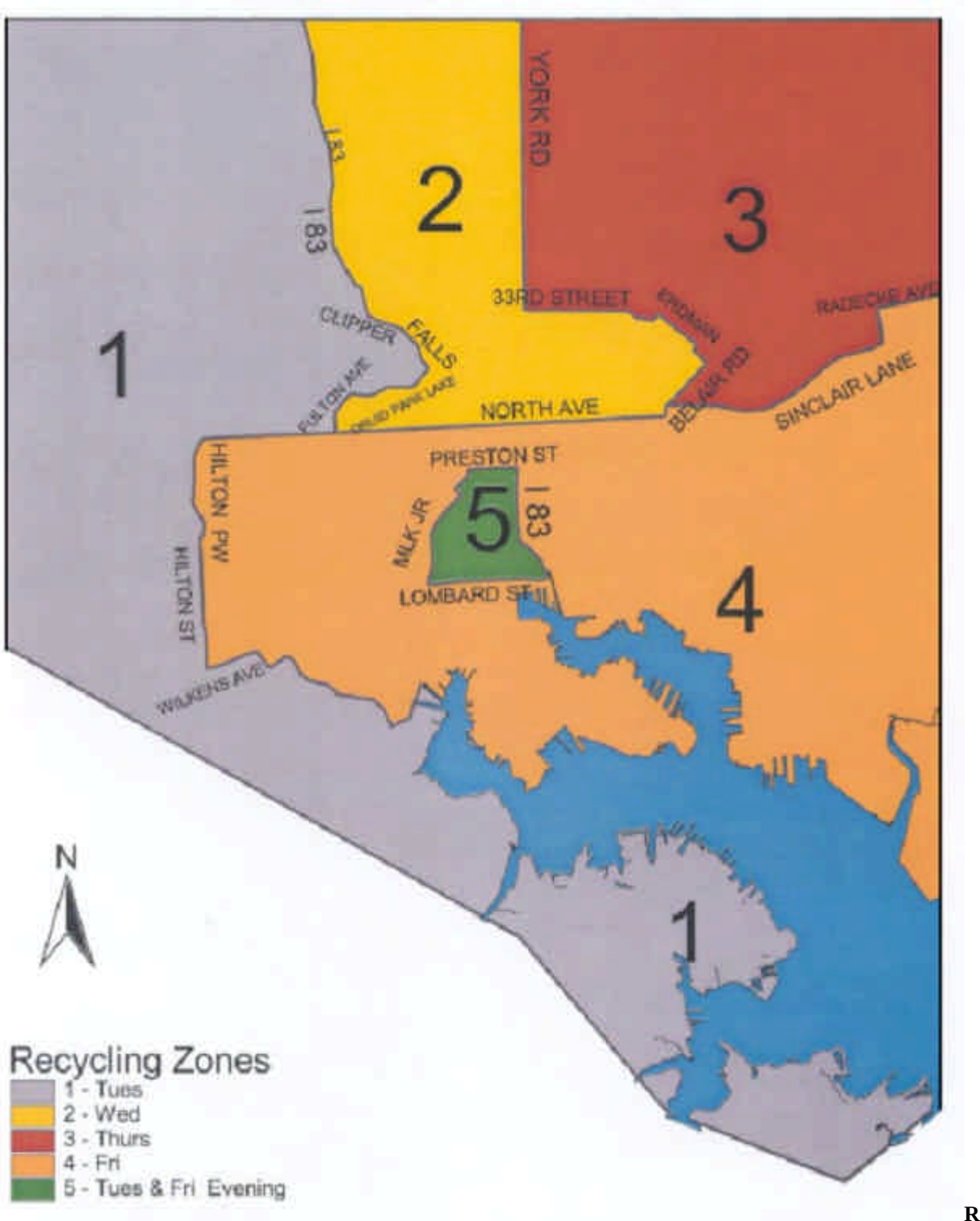
Franklintown Road facility (see Figure 3-1). Items collected are mixed paper and mixed containers (or commingles). Mixed paper includes newspapers, magazines, cardboard boxes, advertising mail, computer paper and other such items (excluding carbon paper, waxed paper, and milk or juice cartons). Commingles accepted when placed in translucent blue plastic bags include glass containers; aluminum, tin and steel cans; and polyethylene terephthalate (PET) and/or high-density polyethylene (HDPE) containers. The kinds of materials collected by the City are tabulated in Table 3-4.

Recycling is collected four times a month from each eligible household in the City. Commingles are collected in the City on the second and fourth Monday of each month. Save for the Mount Vernon area of the City, mixed paper is collected from each household on the second and fourth Tuesday, Wednesday, Thursday or Friday of each month, depending on the collection area schedule (see Figure 3-5).

TABLE 3-4
RECYCLING MATERIALS COLLECTED IN REGULAR HOUSEHOLD SERVICE

Mixed Paper Collection	Mixed Container Collection
1. Newspaper 2. Magazines 3. Cardboard Boxes 4. Paper Board 5. Ad Mail 6. Computer Paper	1. All Colored Glass 2. Aluminum 3. Tin and Steel Cans 4. Aerosol Cans 5. Plastic Soda Bottles and Milk Jugs (SPI Code 1, SPI Code 2)

FIGURE 3-5



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ESIDENTIAL MIXED PAPER RECYCLING COLLECTION DAYS

Drop-off Recycling Centers

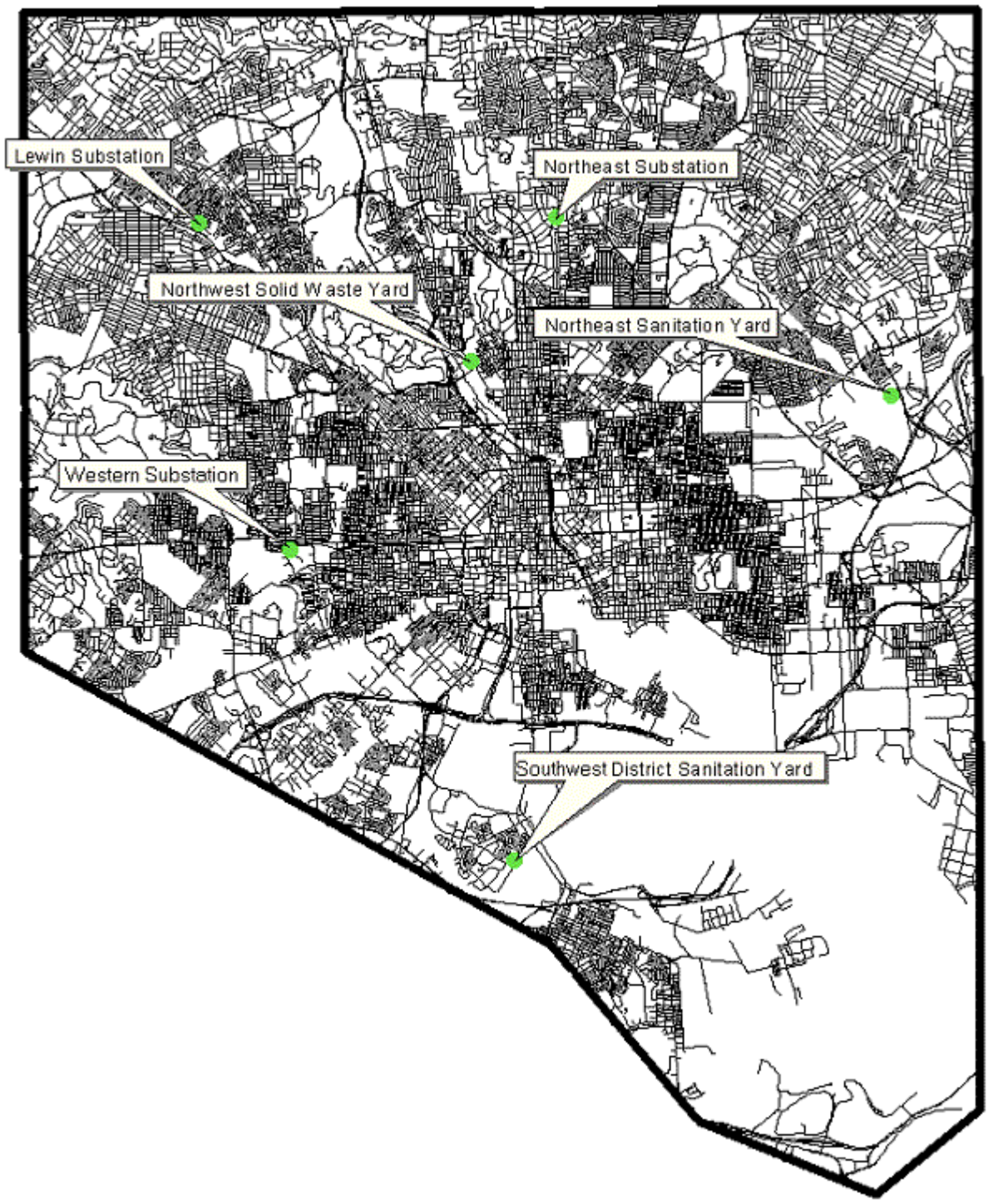
Before the City implemented citywide recycling collection, it supported several community drop-off centers. Now, the City operates drop-off recycling centers at six locations throughout the City, at each of the City's three sanitation yards and at three substations of the Bureau of General Services. The locations of these centers are shown on Figure 3-6. Residents can deposit mixed paper and commingled bottles and cans at these centers. They service the needs of apartment dwellers and other citizens who are not served by the City's regular collection system.

White Goods Collection

White goods are collected from residents' homes as part of the bulk trash collection program described previously in Section 3.3.2. These white goods are separated at sanitation yards, the Northwest Transfer Station (NWTS) and the QRSL, where they are placed in trailers for recycling. Trailers for recycling appliances are also placed at public housing renovation sites to facilitate collections. The Bureau of Solid Waste delivers directly to the David Joseph Company. Chlorofluorocarbons and hydrochlorofluorocarbons (CFCs) and polychlorinated biphenyls (PCBs) are removed at the David Joseph Company location prior to scrapping the metal.

Collection of Leaves

The City collects leaves by vacuum units, mechanical sweepers, and loadpackers each fall. The leaves are taken to mulch sites operated by the Department of Recreation and Parks. The principal mulch site is located at Camp Small (3.1.9). At the mulch sites, the Department, in its horticultural program, composts leaves for use.



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GURE 3-6
RECYCLING DROP-OFF CENTERS

Metal Recovered at BRESCO

As discussed in Section 3.4.1, the BRESCO facility is equipped to remove ferrous and non-ferrous scrap metal from the ash of the waste-to-energy operation. Since City-collected mixed refuse represents approximately 30 percent of the waste processed at BRESCO, about 30 percent of the metals recovered can be considered as part of the City's recycling program.

Institutional Recycling Programs

The City has implemented an institutional recycling program for the collection of white paper and mixed paper from 100 public schools and 22 City office buildings. The program also includes collection of aluminum cans from City office buildings.

A mixed paper recycling pilot program was conducted in seventeen schools for eight weeks in the spring of 1992. The pilot program proved to be successful, and it is being expanded to include all schools by 2001. This expansion was made possible through a grant from the Maryland Environmental Service.

The City is also expanding its office paper recycling program to include all city buildings and will collect mixed as well as white paper in these buildings by the end of 2002. Recycling bags and other materials are being provided for this program.

Recycling Program Achievements

The City collected 242,000 tons of recycling in its residential recycling program in 2001. This rate computes to approximately 34 percent of the City's waste stream. Table 3-5 shows the quantities of many recycled wastes for 2000 and 2001. All recycling waste categories and quantities are reflected in Appendix C.

Public Education, Monitoring and Feedback

The Bureau of Solid Waste's Education and Enforcement Division oversees all recycling programs, coordinates education programs for the public and manages recycling programs and contracts. In its Recycling Block Captain Program, the City currently has approximately 1,000 Block Captains who help promote recycling efforts in their neighborhoods.

In addition to the Block Captain program, the City has provided new public information that emphasizes expanded areas of the recycling program. This information includes a Household Hazardous Waste collection day that is held for City residents twice a year, in two locations. A Household Hazardous Waste Brochure is available, which contains information on the safe disposal of hazardous waste and household hazardous waste alternates.

The Bureau of Solid Waste's Education and Enforcement Division has spring and fall back yard composting workshops. These workshops are held at Cylburn Arboretum with Master Compost instructors provided by Cooperative Extension Services. They are free and open to the public. Residents are taught how to compost yard waste and are provided with an informational package on recycling and composting.

The City's education program includes an office paper recycling program. The program encourages office personnel in City buildings to recycle all office paper. City employees are given a short instructional presentation on a floor-by-floor basis. They are provided bins for the placement of their paper, and each floor has a once a week collection.

TABLE 3-5
ELIGIBLE WASTE COLLECTED AND RECYCLED
IN BALTIMORE CITY IN 2000 and 2001
(Tons)

Recycled	**2000**	**2001**
Mixed Paper	25,695	25,661
Commingled Bottle & Cans	2,833	2,647
White Goods	1,442	3,586
Leaves	15,000	10,510
Wood Waste	1,193	164
Christmas Trees	55	69
Animal Manure	713	233
Tires	7,236	801
Ash	105,500	113,198
Metal Recovered at BRESCO	10,896	9,960
Other Eligible Recycled Waste	64,532	75,432
Total Eligible Waste Recycled	235,095	242,261
Not Recycled		
Mixed Refuse Delivered to BRESCO	498,871	380,586
Mixed Refuse Delivered to QRSL	123,229	98,564
Total Eligible Waste Not Recycled	622,100	479,150
Total Recycled	235,095	242,261
Total Eligible Waste	857,195	721,411
Percent Eligible Waste Recycled	27.43%	33.58%

3.4 WASTE DISPOSAL

State regulations require that Chapter 3 of comprehensive solid waste management plans include information on each existing public or private solid waste acceptance facility in the subdivision. According to the regulations, solid waste acceptance facilities are "incinerators, transfer stations, major composting sites, sanitary and rubble landfills,

major resource recovery facilities, controlled hazardous substances facilities, injection wells and industrial waste liquid holding impoundments."

In compliance with this requirement, information is presented in this section on the public and private waste acceptance facilities located in Baltimore City. Private facility information is primarily obtained for MDE records. Geographic coordinates for each facility are indicated below the facility name.

Currently, the City disposes the majority of the solid waste it collects at BRESCO pursuant to a contract with the Northeast Maryland Waste Disposal Authority. In turn, this facility has contracted with the City to dispose of their ash residue at QRSL.

Following the descriptions of the waste acceptance facilities, various contractual arrangements are summarized in Table 3-11, which includes major existing recycling companies.

3.4.1 Baltimore Refuse Energy Systems Company (BRESCO)

(N 523,500; E 905,000)

The BRESCO plant is located at 1801 Annapolis Road on 15 acres of land owned by the Mayor and City Council of Baltimore. The plant itself is privately owned by the Connecticut Bank and Trust Company, National Association, as trustee, and leased back for operation by BRESCO, an indirect subsidiary of Waste Management Inc. It was constructed in 1984 and became fully operational in 1985.

The BRESCO plant is structured around three mass-burning, water wall furnaces. These furnaces can burn up to 2,250 tons of refuse per day at temperatures between 2400 and 2800 degrees Fahrenheit, reducing the volume of waste by up to 90 percent.

This combustion process generates heat that is used to convert water into steam. Operating at full capacity, BRESCO can produce as much as 500,000 pounds of steam per hour. Part of the steam is used to drive turbines and generate electricity. The rest is sold to the district heating and cooling system operated by the Trigen Company in downtown Baltimore.

During optimal conditioning, approximately 10 percent of the waste by volume and 27 percent by weight remains in the form of ash residue after combustion, and ferrous and non-ferrous materials are removed. Ferrous and non-ferrous metals are removed from this ash and sold to a scrap dealer. The ash is delivered to QRSL where it is used for daily cover.

According to its audited records for 2001, BRESCO accepted approximately 736,000 tons of debris per year from Baltimore City, Baltimore County and other parties. Approximately 10,000 tons of scrap metal is recovered from the ash, and 183,000 tons of ash is left for disposal.

In 1997 BRESCO expanded its permit to allow waste to be transferred to another facility for disposal. This debris, currently averaging approximately 200 tons per day, is disposed of at a landfill in Pennsylvania.

BRESCO's air scrubbing system, which prevents pollutants from being released into the atmosphere, needed to be rehabilitated by December 2000 in order to be in compliance with the Clean Air Act Amendments of 1990. Thus the Northeast Maryland Waste Disposal Authority, in conjunction with Baltimore City and Baltimore County, negotiated an extension of the agreement that the City has with BRESCO, set to expire in 2002, to 2011. Under this agreement, the City contributed $17.5 Million to the rehabilitation project in exchange for substantially lower tipping fees over the life of the agreement.

BRESCO has obtained and operates in compliance with necessary City, State and Federal permits. Emissions from the electrostatic-precipitator-equipped smokestacks are monitored by the Maryland Department of the Environment.

3.4.2 Quarantine Road Sanitary Landfill

(N 500,000; E 925,000)

The Quarantine Road Sanitary Landfill (QRSL) is located at 6100 Quarantine Road on a 157-acre site in Hawkins Point[1], 125 acres of which will be utilized as a landfill. It is owned by the Mayor and City Council of Baltimore and operated by the City's Department of Public Works, Bureau of Solid Waste.

The first cell of the landfill was constructed and began accepting waste in August, 1985. Originally, the landfill was designed as six cells surrounding a central core that was to remain in place. The design capacity was approximately

11.2 million cubic yards with an expected 9.1 million cubic yards or approximately 5.4 million tons allocated for waste. The remaining volume was allocated for cover material. These calculations were based on an industry standard factor of 1 ton of mixed refuse and bulk material occupies 1.67 cubic yard of landfill space. In 1989 QRSL was redesigned to remove the central core and raise the overall landfill elevation. The capacity was thereby enlarged to approximately 18.3 million cubic yards. Using the same industry standard of 1.67 cubic yard/ton, it was anticipated that 15.8 million cubic yards or 9.4 million tons of solid waste could be placed. At the time of re-design, it was thought that QRSL would reach capacity between 2001 and 2004.

In August of 1994, the City utilized aerial photography and consultant services to upgrade the life expectancy estimate of the landfill. Using this information, it was learned that the industry standard of 1.67 cubic yard/ton should not be applied at QRSL due to the high percentage of ash. (Ash is much denser than the predicted industry standard of 1.67 that was used in the original life projections.) Actual operations indicated that 1 ton of QRSL debris was occupying 1.12 cubic yards of volume.

In October 1996, aerial photography was again performed. Actual operations indicated that 1 ton of debris was occupying 1.08 cubic yards of volume. The estimated life of the landfill was revised to 2019 +/- a year.

In March 1999, another aerial photography of the landfill was performed that indicated that one ton of debris was occupying 0.8 cubic yard of volume, which would extend the life of the landfill to sometime around 2032.

However, subsequent aerial photography in 2001 showed the landfill filling at its most rapid pace since its opening, especially with the addition of more building debris from City demolitions. It is now estimated that the landfill could reach capacity as early as 2014.

In 2001, QRSL accepted approximately 580,000 tons of waste. The amounts and kinds of waste that comprised this total are shown in Table 3-8. It can be seen that the majority of waste accepted is non-organic material; ash, rubble and bulk. The largest single category of waste accepted at the landfill was incinerator ash, accounting for approximately 37% by weight and 35% by volume.

City and State permits have been obtained for the entire QRSL site. A leachate collection system and a groundwater monitoring system are in place.

TABLE 3-6
SOLID WASTE ACCEPTED AT QUARANTINE LANDFILL IN 2001

[1]The Baltimore City Composting facility occupies 8 acres of this site (see Section 3.4.6).

TYPE	TONS	% BY WEIGHT
BRESCO Ash	216,100	37%
Patapsco WWTP Ash & Grit	7,800	1%
City Rubble	12,500	2%
Private Rubble	2,400	0%
City Mixed Refuse	68,100	12%
Charities Bulk Debris	19,500	3%
Industrial Sludge-Grace	23,600	4%
Industrial Waste-Grace	3,100	1%
Private Haulers	180,400	31%
Public Agencies Bulk Debris	44,000	8%
Total	**577,500**	**100%**

3.4.3 Baltimore Regional Medical Waste Facility

(N 498,500; E 926,000)

Baltimore Regional Medical Waste Facility, formerly Medical Waste Associates, is located on a 4 acre site at 3200 Hawkins Point Road. This facility is a medical waste incinerator, which is privately owned by Phoenix Services Limited Partnership. The facility has a permitted capacity of 150 tons per day. Last available numbers indicate that 44 percent of this amount came from medical facilities within the City, while 56 percent was imported. The ash residue remaining after incineration (approximately ten percent of the original volume and approximately 35 percent of the original weight) is disposed of at an out-of-state facility.

3.4.4 Stericycle Inc. Incinerator

(N 500,000; E 921,500)

Stericycle Inc., formerly Med Net and MEDEX, is a privately owned incinerator located on a 2.4 acre site at 5901 Chemical Road. The facility has a capacity of 14.4 tons per day, and operates 24 hours a day, 365 days a year. Only infectious and pathological ("red bag") wastes in approved containers are accepted at the incinerator, with special provisions made for collection, handling, storage and monitoring of wastes. Approximately 30 percent of the

waste accepted at this facility is imported from outside the Baltimore region. The ash remaining after incineration is disposed of at an out-of-state facility.

3.4.5 Patapsco WWTP Incinerator

(N 510,000; E 922,500)

The Patapsco Wastewater Treatment Plant Incinerator is located at 3501 Asiatic Avenue, on the 66-acre treatment plant site. This facility was closed in February 1996. Sludge from this location is currently pelletized on site.

3.4.6 Baltimore City Composting Facility

(N 501,000; E 928,000)

The Baltimore City Composting Facility is located at 5800 Quarantine Road on eight acres of the 157-acre QRSL site. The plant itself is privately owned by Baltimore City Composting Partners. Only sewage sludge generated at the City's Back River Wastewater Treatment Plant is accepted at the composting facility, which has a design capacity of approximately 175 wet tons per day. The sludge is mixed with wood chips and aerated to produce compost that is marketed locally for landscaping purposes.

3.4.7 Northwest Transfer Station

(N 549,500; E 890,000)

The 9.8-acre Northwest Transfer Station (NWTS) at 5030 Reisterstown Road is owned and operated by the City. The station's design capacity is 600 tons of mixed refuse per day. Currently, approximately 300 tons of mixed refuse and maintenance debris per day are transferred at this station from collection trucks to trailers for hauling to BRESCO.

In 1985 two areas were added to the station, for transferring street dirt and bulk wastes from collection trucks to trailers for hauling to QRSL. The transfer station also has roll-off containers for disposal of excess mixed refuse or bulk items brought to the station by City. In 2000 the transfer station had an outdoor facility designed and installed to accommodate mechanical sweepers for the transfer of street sweeping debris. Also in 2000 design began for the rehabilitation of the transfer station, with construction originally scheduled to begin in 2001.

However, the City of Baltimore was entertaining the possibility of either selling or leasing the NWTS to a private entity for continued use as a transfer station, which suspended the construction. With the City's decision to keep the NWTS, this construction is now scheduled for early 2003.

3.4.8 Stericycle Inc.

(N 518,500; E 904,000)

Stericycle Inc., formerly Waste Management, Inc., owns and operates a private transfer station and processing facility for medical waste at 2510 Erick Street. Its maximum capacity is 24.6 tons per day. Fifteen percent of the total volume is generated within Baltimore City.

3.4.9 Clean Harbors of Baltimore, Inc. Treatment Facility

(N 524,000; E 903,500)

Clean Harbors of Baltimore, Inc., owns and operates a major waste treatment facility on a 5.5 acre site at 1910 Russell Street. Hazardous and non-hazardous liquid wastes are treated on site, with non-hazardous wastewater discharged into City sewers, while the sludge remaining after processing is being exported to out-of-state landfills. The company also handles or "brokers" oil, oily debris, non-hazardous industrial solids and hazardous solids generated both inside and outside the City and the State, exporting them for disposal out-of-state.

3.4.10 Baltimore Processing Center

(N 500,000; E 920,500)

Baltimore Processing Center, formerly FERST for Baltimore, Inc. is located at 5800 Chemical Road. An enclosed composting and recycling facility designed to process 700 tons per day of residential and commercial solid waste went into start-up in mid-January, 1993. MSW was to be supplied to the facility under a private contract. The facility is owned by BFI/Allied Waste.

Material arriving at the plant passes along four recycling conveyors where glass, plastics, aluminum cans, paper and scrap metal are removed for recycling. The organic fraction then passes through shredders and is composted for 12 to 18 days. The compost is cured for an additional 25 to 30 days. Finished compost will be screened prior to marketing. The facility accepts selected types of waste for processing and excludes discarded appliances and wastes from generators such as gas stations and dry cleaners.

On April 13, 1998, a permit was issued to Browning Ferris Industry Waste Systems of North America, Inc. (BFI). BFI must operate within the parameters of the FERST permit.

3.4.11 Millennium Inorganic Chemicals, Inc. Landfill

(N 498,250; E 927,500)

Millennium Inorganic Chemicals Inc., formerly SCM Chemicals, Inc., owns and operates an industrial landfill in the Curtis Bay area. Millennium Inorganic Chemicals headquarters is located at 3901 Fort Armistead Road.

At the headquarters site, 57 acres are utilized as a landfill. It accepts approximately 350,000 tons annually of non-toxic, non-hazardous solid waste, primarily gypsum material for disposal.
Millennium Inorganic Chemicals also owns and uses another landfill in the Hawkins Point area of Baltimore City. (N 508,000, E 932,000) The material disposed of at this site is also generated from Millenium's Hawkins Point Plant. There is no permit information available on this site.

3.4.12 Sanifill of Maryland, Inc.

(N 525,000; E 903,000)

This processing facility is located at 1401 West Hamburg Street and is owned and operated by the Sanifill of Maryland Inc. It was formerly owned by Baltimore Environmental Recovery Group; and was transferred in February 1998. This site received a Maryland Department of the Environment Refuse Disposal Permit in September 1997, to construct and operate a processing facility. This facility may accept up to 200,000 cubic yards of non-hazardous commercial waste and up to 1,000,000 cubic yards of demolition and construction debris annually. This facility may accept a maximum of 4,059 cubic yards of debris per day. According to State records, 75 percent of the waste is from the City; 24 percent from other parts of Maryland, and 1 percent from out of the State.

3.4.13 Edison Processing Facility

(N 535,000; E 920,000)

The Edison Processing Facility is located on the western side of the former Armco Steel Property at 1030 Edison Highway. The facility is owned by Edison Associates LLC, and operated by Baltimore Aggregate Recycling LLC. Currently at this 12.5-acre site, aggregates such as asphalt, clean concrete, dirt, gravel, and sand are processed for recycling. A permit was issued in 2001 for the construction and operation of a 500-ton per day construction and

demolition processing facility. This permit will allow items such as drywall, lumber, and masonry to be processed for recycling. Materials that can not be recycled will be reloaded and transported to one of several MDE permitted landfills.

3.4.14 Certified Storage and Disposal Inc.

This privately owned and operated cosmetic processing facility is located at 1100 Wicomico Street. This facility accepts off-specification, non-flammable cosmetics generated by Noxell, a manufacturer who produces cosmetics, for processing and disposal off site. The facility is open from 7:00 a.m. to 7:00 p.m., and accepts primarily shampoos, conditioners, liquid make-ups and skin care lotions. The maximum amount of materials is not to exceed 6 tons daily.

3.4.15 Recycling Companies and Facilities

State regulations do not require that recycling facilities be included under the category of waste acceptance facilities.

However information available to us, pertaining to major recyclers such as Emanuel Tire Company, Potts and Callahan, and Chesapeake Paperboard Company has been included in Table 3-9 and Appendix B. A list of recycling companies including wastepaper, scrap and multiple materials businesses in the greater Baltimore area is provided for reference in Appendix B. This list is not intended to be all-inclusive and is included for informational purposes only.

3.4.16 Summary of Waste Acceptance Facilities for Waste Categories

An overall index to waste acceptance facilities in Baltimore is presented in Table 3-10. In this table, the waste categories discussed in Section 3.1 are listed with the corresponding waste acceptance facilities or types of facilities discussed above in Section 3.4. In effect, this table summarizes the solid waste acceptance facilities in Baltimore.

TABLE 3-7
SUMMARY OF CITY'S WASTE DISPOSAL AGREEMENTS

Other Parties	Term	Description	Comments
1. Northeast Maryland Waste Disposal Authority	1982-2011	City contracted for incineration capacity at 281,250 tons per year at BRESCO; with the ability to modify 3% each year.	Tipping fee set by formula in 1999-$30.88 per ton. In 1997 the City delivered 280,000 tons. Similar agreement exists with Baltimore County for 93,750 tons.
2. Northeast Maryland Waste Disposal Authority	1982-2011	City obligated to accept as much as150,000 tons of ash at the Quarantine Road Sanitary Landfill from BRESCO.	Tipping fee set by formula in 1999- $12.84 per ton . In 1997 BRESCO delivered 180,000 of ash. The Authority has reservedthe capacity in the landfill for future disposal.
5. David Joseph Co.	1997 – 2001	Annual renewable contract for processing and recycling “white goods”.	Company removes CFCs and PCBs and then scrapes the metal content for recycling. Company compensates the City at a quarterly market rate.
7. Vangel	1997-1999	Two year renewable contract for processing of white paper.	Company removes white paper from City Buildings, price is based on monthly market index.

TABLE 3-8
WASTE ACCEPTANCE FACILITIES FOR WASTE CATEGORIES

Waste Category	Acceptance Facilities	Reference Section
Mixed Refuse (Residential, Commercial, and Institutional)	BRESCO	3.4.1
	Quarantine Road Sanitary Landfill	3.4.2
	Northwest Transfer Station	3.4.7
	Baltimore Processing Center	3.4.10
	Sanifill of Maryland	3.4.12
Recycling Facilities	Recycling Facilities	Appendix B
Special Hospital Waste	Baltimore Medical Waste Facility	3.4.3
	Stericycle Incinerator	3.4.4
	Stericycle Inc,	3.4.8
Industrial Non-Hazardous Waste	Quarantine Road Sanitary Landfill	3.4.2
	Baltimore Processing Center	3.4.10
	Millennium Inorganic Chemicals, Inc.	3.4.11
	Sanifill of Maryland Inc.	3.4.12
	Certified Storage and Disposal, Inc.	3.4.14
Land Clearing & Demolition Debris	Quarantine Road Sanitary Landfill	3.4.2
	Sanifill of Maryland Inc.	3.4.12
	Edison Processing Facility	3.4.13
Bulky or Special Waste	Quarantine Road Sanitary Landfill	3.4.3
	Recycling Facilities	Appendix B
Liquid Waste	Clean Harbors of Baltimore	3.4.9
Treatment Plant Sludges	Patapsco WWTP Incinerator	3.4.5
	Baltimore City Composting Facility	3.4.6